

Amendments to the Claims

Please cancel Claims 6 and 7 without prejudice or disclaimer of the subject matter recited therein.

Please amend Claims 1-3, 10, 11, 13 and 17-20 and add Claims 21-25 as follows.

1. (Currently Amended) A printing apparatus ~~which~~ having a printhead for printing and prints using a printhead, wherein a printing controller for feedback-controlling driving of a motor based on a first driving pattern, the printing apparatus ~~comprises~~ controller comprising:

control information generation means for generating control information for ~~controlling a driving torque of a~~ the motor, while the motor is driven on the basis of a the first driving pattern;

comparison means for comparing the control information and a threshold for determining an overload on driving of the motor; and

setting means for setting a second driving pattern, instead of the first driving pattern, based ~~on the basis of~~ a comparison result of said comparison means.

2. (Currently Amended) The apparatus according to claim 1, further comprising detection means for detecting feedback information for driving of the motor, wherein said control information generation means updates the control information in order to compensate for a deviation between the first driving pattern[[,]] and the feedback information ~~for driving of the motor that is~~ detected by said detection means.

3. (Currently Amended) The apparatus according to claim 1, wherein the control information includes a voltage value PWM-controlled to ~~drive~~ be applied for driving the motor.

4. (Original) The apparatus according to claim 1, wherein said setting means sets the second driving pattern to the first driving pattern again at a timing when the overload on the motor is canceled or predicted to be canceled.

5. (Previously Presented) The apparatus according to claim 1, further comprising storage means for storing at least one of the first and second driving patterns as a driving pattern generated in advance, wherein said setting means can select and set a driving pattern stored in said storage means.

Claims 6 and 7 (Canceled).

8. (Previously Presented) The apparatus according to claim 1, wherein, when the control information exceeds the threshold from the comparison result of said comparison means, said setting means sets a lower-velocity driving pattern lower than the first driving pattern as a driving pattern for driving the motor.

9. (Previously Presented) The apparatus according to claim 1, wherein, when the control information does not exceed the threshold from the comparison result of said comparison means, said setting means sets a higher-velocity driving pattern higher than the first driving pattern as a driving pattern for driving the motor.

10. (Currently Amended) The apparatus according to claim 1, further comprising first and second motors, wherein, in ~~control of~~ feedback controlling of the first motor and open-loop controlling of the second motors motor,

for a torque margin of the second motor \geq a torque margin of the first motor,

said comparison means compares control information for the first motor and a first threshold for determining an overload on driving of the first motor, and

said setting means sets a driving pattern for changing a load on driving of the first motor and the second motors motor on the basis of a comparison result of said comparison means.

11. (Currently Amended) The apparatus according to claim 10, wherein, in ~~control~~ feedback controlling of the first motor and open-loop controlling of the second ~~motors~~ motor,

for a torque margin of the second motor $<$ a torque margin of the first motor,

said comparison means sets a second threshold for determining an overload on driving of the first and second motors, and compares control information for the first motor and the second threshold, and

said setting means sets a driving pattern for changing a load on driving of the first motor and the second ~~motors~~ motor on the basis of a comparison result of said comparison means.

12. (Original) The apparatus according to claim 11, wherein the second threshold generated by said comparison means satisfies a relation: the first threshold $>$ the second threshold.

13. (Currently Amended) The apparatus according to claim 10, wherein the first motor ~~includes~~ comprises a DC motor which can be feedback-controlled.

14. (Previously Presented) The apparatus according to claim 1, further comprising printing data generation means for scanning a carriage supporting the printhead relative to a printing medium and converting information transmitted from an external device into printing data complying with an arrangement of the printhead.

15. (Previously Presented) The apparatus according to claim 14, wherein the printhead comprises an ink-jet printhead which prints by discharging ink.

16. (Previously Presented) The apparatus according to claim 15, wherein the printhead discharges ink by using heat energy, and comprises an electrothermal transducer for generating heat energy to be applied to ink.

17. (Currently Amended) A printing apparatus control method of driving, on the basis of feedback control, a printing apparatus ~~which prints using a printhead~~, having a printhead for printing and a printing controller for feed-back controlling driving of a motor based on a first driving pattern, said method comprising:
a control information generation step of generating control information for ~~controlling a driving torque of a the motor, while the motor is driven based on the basis of a the~~ first driving pattern;
a comparison step of comparing the control information and a threshold for determining an overload on driving of the motor; and

a setting step of setting a second driving pattern, instead of the first driving pattern, on the basis of a comparison processing result of the comparison step.

18. (Currently Amended) A printing apparatus ~~which prints using a plurality of motors, wherein a motor driving device which drives a first motor by feedback control and a second motor by open-loop control comprises~~ having first and second motors used for printing and a printing controller for feedback controlling driving of the first motor based on a first driving pattern and open-loop controlling driving of the second motor based on the first driving pattern, the printing controller comprising:

~~control information generation means for generating control information for each motor on the basis of a first driving pattern corresponding to each motor in order to drive the first and second motors~~ a driving torque of the first motor, while the first motor is driven based on of the first driving pattern;

~~comparison means for comparing control information of the first motor and a threshold for determining an overload on driving of the first motor; and~~

~~setting means for setting second driving patterns corresponding to the first and second motors, by said control information generation means instead of the first driving pattern,~~ based on the basis of a comparison result of said comparison means.

19. (Currently Amended) A method of controlling a printing apparatus ~~which prints by driving a first motor by feedback control and a second motor by open-loop control; having first and second motors used for printing and a printing controller for~~ feedback controlling driving of the first motor based on a first driving pattern and open-loop controlling driving of the second motor based on the first driving pattern, the method comprising:

a control information generation step of generating control information for ~~each motor on the basis of a first driving pattern corresponding to each motor in order to drive the first and second motors~~ a driving torque of the first motor, while the first motor is driven based on the first driving pattern;

a comparison step of comparing control information of the first motor and a threshold for determining an overload on driving of the first motor; and

a setting step of setting second driving patterns corresponding to the first and second motors, ~~instead of the first driving pattern,~~ based on the basis of a comparison result of the comparison step.

20. (Currently Amended) The apparatus according to claim 1, further comprising first and second motors, wherein, in ~~control of feedback controlling of the first motor and open-loop controlling of the second motors~~ motor,

for a torque margin of the second motor < a torque margin of the first motor,

said comparison means sets a threshold for determining an overload on driving of the first and second motors, and compares control information for the first motor and the set threshold, and

said setting means sets a driving pattern for changing a load on driving of the first and second motors based on ~~the basis of~~ a comparison result of said comparison means.

21. (New) The apparatus according to Claim 1, wherein said setting means sets the second driving pattern, which generates a greater driving torque than the torque generated based on the first driving pattern, instead of the first driving pattern.

22. (New) The apparatus according to Claim 10, wherein the first motor comprises a DC motor, and the second motor comprises a stepping motor.

23. (New) The apparatus according to Claim 18, wherein the first motor comprises a DC motor, and the second motor comprises a stepping motor.

24. (New) The apparatus according to Claim 20, wherein the first motor comprises a DC motor, and the second motor comprises a stepping motor.

25. (New) The apparatus according to Claim 18, wherein the first motor comprises a conveying motor, and the second motor comprises a feeding motor.